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ROCKS and MINERALS

Official Journal
of the
Rocks and Minerals
Association



A Magazine for
Mineralogists,
Geologists and
Collectors

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APRIL, 1945

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Vol. 20, No. 4

Whole No. 165

ART OF GEM CUTTING

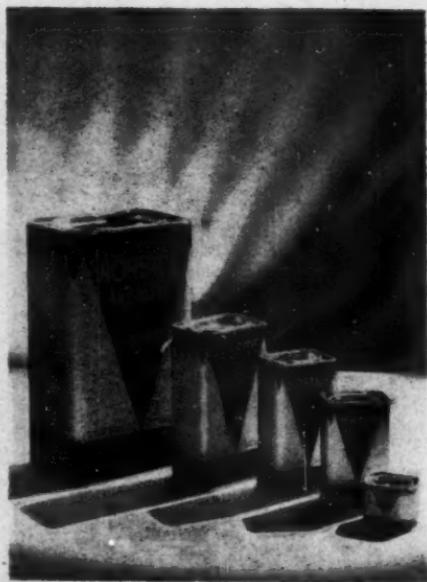
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The New Third Edition of **THE ART OF GEM CUTTING** will be available on or about APRIL First. This popular work has been enlarged and completely rewritten. It contains complete and modern techniques on the cutting of all gem stones, including facet styles, other than diamond. All data on gem cutting and the lapidary art has been brought up to date in the new edition.

The present authors are Dr. H. C. Dake, editor of the **Mineralogist**, and Richard M. Pearl, certified gemologist.

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ROCKS and MINERALS

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PETER ZODAC

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ROCKS and MINERALS

PEEKSKILL, N. Y., U. S. A.

The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

TECHNOLOGISTS AND GEOLOGISTS NEEDED IN FEDERAL SERVICE

The Civil Service Commission wishes to bring to your attention the continuing need for Geologists and Technologists in the Government service.

The Geologist positions pay \$2,433 a year and require three years of technical experience in one of the various branches of geology, unless substituted by appropriate education.

The salaries for the Technologist positions range from \$2,433 to \$6,228 a year, including overtime pay, although most of the positions are at the lower salary levels. Technologists are especially desired who have had experience in testing, development, or production in the following industries: Coal; food; fuels (liquid); paint, varnish, and lacquer;

petroleum; synthetic resins and plastics; electrochemical; and process metallurgical. For the lower grade, 3 years of experience in technology is required. However, education may be substituted for this experience. For the higher grades, additional professional experience is required.

No written test will be required for either of these positions, and there are no age limits.

Applicants may secure copies of the announcements and proper application forms at first- and second-class post offices, or by writing direct to the Civil Service Commission, Washington, 25, D. C.

Short Mineral Hunting Trips and Gasoline

Most mineral societies have abandoned group rock hunting for the duration. This, in many ways, is unfortunate and perhaps unnecessary to a considerable extent. Close to many cities there are good locations where a rock hunter can find worthy specimens for his collection. Long trips, of course, are out of the question; but on short rides the sharing of cars and A-coupons enables some good hunting to be done without endangering the war effort. At the same time, the healthy outdoor exercise tends to keep our busy doctors away.

War laws and regulations allow for a small amount of social driving, and if the Government was not willing for citizens to use gasoline in a limited way for social purposes, it would refuse to issue any A coupons at all. The real fuel shortage is in the high test gasoline for military purposes, and civilians are not al-

lowed to use it. In fact, their engines would not burn high test gasoline without damage. Those rock hounds whose consciences bother them, may be reminded that the quantity of civilian gasoline in storage is the greatest in history.

To rock hounds in the San Francisco district, attention is drawn to a new location within a short driving distance. It is reported that the old St. John's Quicksilver Mine in the hills about six miles from the Mare Island, navy yard, Vallejo, California, has been reopened after many years. The new operator is Walter J. Robertson, 208 Del Mar Avenue, Vallejo. The writer visited this mine several years ago, but the small dumps, mostly covered, were all badly weathered. But, if a new dump is being made from recent underground workings, perhaps something of interest can be found. Should any reader go there, let's hope that he will tell *Rocks and Minerals* of his experiences.

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Whole No. 165

MRS. MINNIE ZODAC

JUNE 3, 1870 — MARCH 19, 1945

It is with much sorrow that I announce the death of my dear mother who passed away at 10:15 p.m., on Monday, March 19, 1945, after a heart attack of about 30 minutes duration. This leaves me all alone.

Mother died at her home at 157 Wells Street, Peekskill, N. Y., but the funeral services were held from the J. J. Dorsey Funeral Home, 1025 Park Street, on Thursday (the 22nd) at 9:00 a.m., and at the Church of the Assumption, at 10:00 a.m., where a requiem mass was said. Interment was in the Assumption Cemetery.

Mother was born in Krywa, Austria, on June 3, 1870, the elder of two daughters of Alexander and Anna Bybel (she also had four brothers and a half-sister, the oldest of them all). She came to America when only 14 years of age and for 55 years resided in Peekskill, N. Y. My father, whom she married about 1890, was Peter Zodac, but as he died when only 28 years old—being buried on my third birthday—and as I do not remember him, I never used "junior" after my name. It was in Peekskill where I was born, on September 24, 1894, and have made it my home town ever since.

In addition to her son, mother is also survived by her half-sister, Mrs. Anna Sewalk, of Peekskill, and by her youngest brother, Frank, of Yonkers, N. Y.

Though most of you have never met my mother, nor perhaps even heard of her, all of you were her very dear friends, nevertheless. For her one passion in life was her love for me and anyone who extended even the slightest courtesy to me automatically became her friend for life.

All those who knew my mother intimately were attracted to her sweet soul and her fondness for prayer as she was praying all the time, day and night. And when ROCKS AND MINERALS was founded, she immediately centered her attention to it, praying for its success, for its readers, subscribers, contributors, advertisers, and printers—and for its editor. Many a night was I awakened in some unexplained manner—at 1, 2, 3, or 4 a.m.—to discover a light shining from her room and on investigation found her praying—saying her rosary—for you and for me. If I remonstrated and asked her why she was praying at that hour, her answer would be that "God heard her best when all was quiet and peaceful."

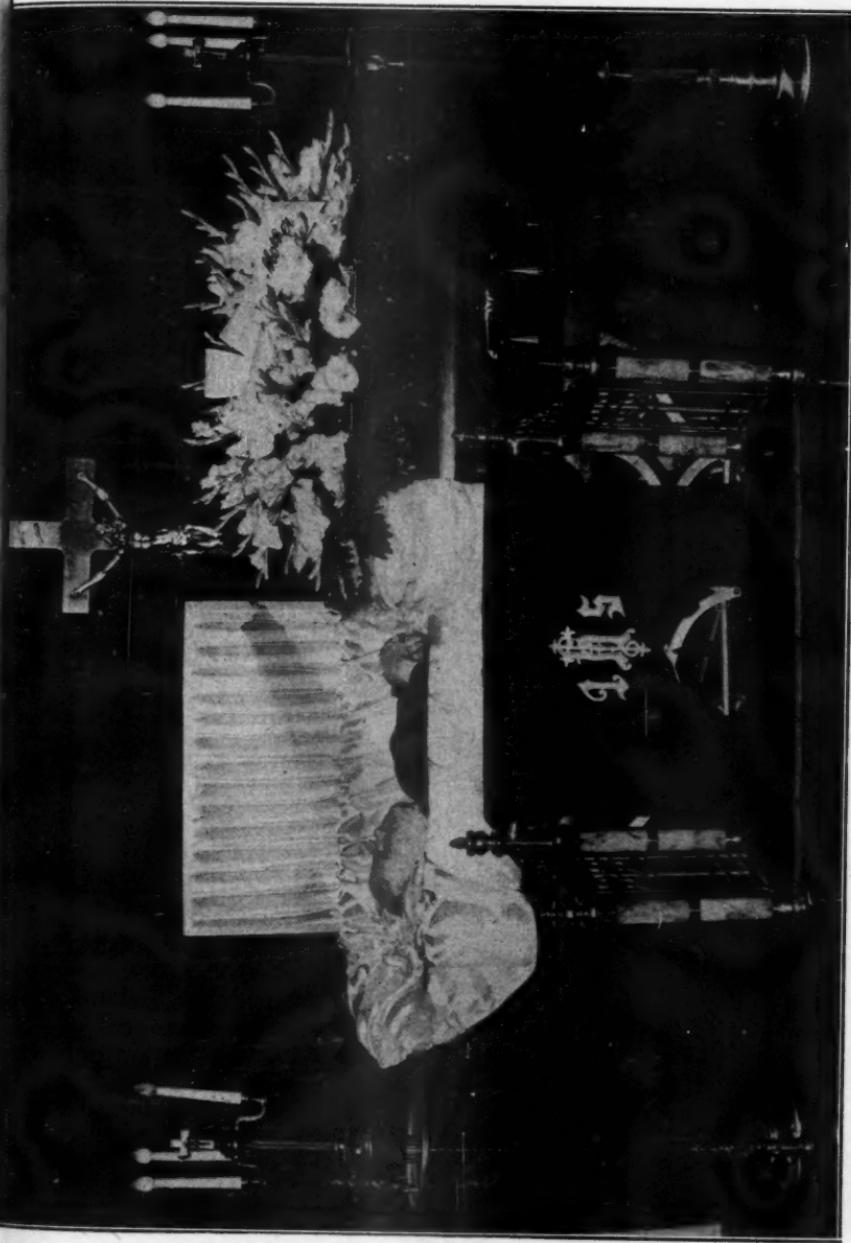
Many a time when things looked very black and most discouraging to me, she would never falter in her prayers—her faith was firm and solid. "Son," she would say quietly, "don't be discouraged. You cannot expect God to help you all the time. He has many others to help, some, perhaps, who are more worthy than you. Be patient. Your turn will come again!"

Mother was afflicted with poor eyesight which touched her deeply so that she seldom appeared in public except on her way to and from church; during the past few months she could barely distinguish daylight. Although she knew only a little about minerals, since she could not distinguish them very well, she loved them dearly because they meant so much to me. She was always overjoyed to unwrap specimens, and especially those sent me as gifts, and awaited with eagerness my comments on them. When she



MY MOTHER

Peekskill Evening Star Photo, March 21, 1945



Mrs. Minnie Zodac reposing in the Dorsey Funeral Home.

unwrapped one that was of unusual interest, her joy was filled to overflowing and she reacted as a collector would who had discovered an unusually beautiful mineral at a locality. It was my dear mother's interest and enthusiasm and encouragement and prayers which have made ROCKS AND MINERALS what it is today. Without my mother's prayers and unselfish support, the magazine would have long since gone out of existence.

Many men do not believe in prayer. Many men do not believe in God, either, as witness the horribly cruel wars now raging in the world. But those who do believe in prayer, believe in God also, and know only too well that life on this earth is simply a preparation for entry into the glorious and heavenly kingdom beyond and that we are aided in this by pious men and women and especially our mothers. Not until we reach the end of our days on earth—when we stand at the very threshold of the heavenly kingdom, do we learn if we have passed. And it is God Himself, the Creator of heaven and earth and all things—even our beloved minerals—who judges us. Surely every friend of ROCKS AND MINERALS must have some "high marks" stored away in heaven, due to the prayers of my mother, on which God may draw when the hour of our judgment arrives.

Another warm spot in her character was my mother's joy in meeting friends of mine when they called at the house. Nothing was too good for them. She would deny herself many things, or endure inconveniences, even pain as she was often in poor health, in order to entertain them.

I owe my dear mother such a heavy debt that it can never be repaid. All that is good in me, comes from her. First she taught me to love God and to obey His commandments. She taught me also, and by good example, how to be kind, charitable, generous, forgiving, and grateful and how to respect another's belief and feel-

ings. God Bless her and all mothers like her! And in addition to all this, she encouraged in every way possible my love for minerals.

ROCKS AND MINERALS is not the greatest magazine in the world, nor has it a huge circulation, but it does number among its friends some of the finest people known. Whether these friends have been drawn to the magazine, or converted, by my mother's prayers, I shall never know but it is a pleasure and a privilege to issue ROCKS AND MINERALS for them. The sole purpose of ROCKS AND MINERALS is not to make money, nor to make a big name for itself or its editor—its chief purpose is to disseminate and share with those willing to read some of the delightful and most fascinating items about rocks and minerals which had captured our hearts, my mother's and mine.

Now that my mother is gone, I am all alone and feel it. I am lost without her. But I will continue ROCKS AND MINERALS, as she would wish me to, and will try to keep up its good points as before. Beginning with this issue and perhaps extending for a few months, the magazine may be a little wobbly, here and there. Will you please be patient and bear with me awhile?

It is my privilege and sacred duty to thank all those living (and to remember with grateful memory those who have passed on) who have in any way shown some act of kindness to my mother during her sojourn on this earth whether through personal contact, by mail, or otherwise. All of you, kind friends, have helped to make my mother's life a very happy one.

And finally, if ROCKS AND MINERALS has in any way pleased you, will you do me a favor in return? Say a little prayer for my mother. I will not know if you say it, no one else on earth may know it, but God will know it, and so will my dear mother! God Bless you all a million-fold!

PETER ZODAC.



UTILIZATION OF MINERALS

By CLARK HARRISON

West Coast Correspondent for Rocks and Minerals

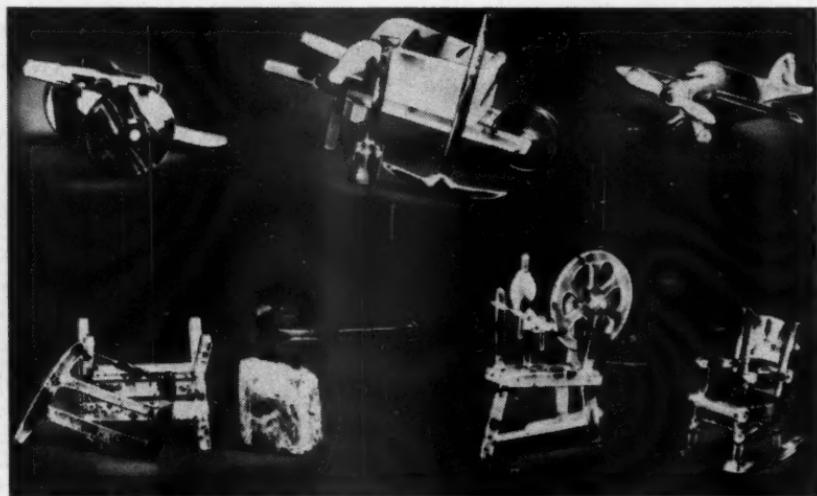
Since the war has brought about gasoline rationing, the utilization of minerals, semi-precious gem stones and various colored rocks, has developed to a high degree. Less field trips and working more at home, with dissemination of knowledge, and interest increased by the springing up of mineral and gem stone societies has lent aid, color and encouragement to the lapidary art. There is hardly any end to the different kinds of things that can be made from minerals and rocks, replacing idle hours with fun, excitement, and useful endeavor.

Miniatures represent a very active field. Great patience and lapidary skill are required to bring home blue ribbon prizes. A fine example of this kind of work was the Home and Lapidary Shop exhibition, of C. E. Cramer of Los Angeles. This exquisite piece of work won the grand prize at the world's largest gem stone exhibition held by the Los Angeles (California) Lapidary Society in 1943.

This miniature included a building plot; vegetables growing in orderly rows in a victory garden; a lapidary shop in the

back yard with grinding and polishing equipment, with mannikin attendants; with doors swinging on hinges of the house and shop, which were made of assorted petrified woods. In the dining room the dinner table was set, the dishes, meat and vegetables being well represented in stone. An old cat was sleeping at the door; pigeons and a nest of eggs; a clothesline of opalized wood. Also included in this exhibit was "The Old Woodpile". The ground in the woodyard, buck saw, ax in the chopping block, and the cord of wood were of petrified material. In a sandy, mountainous setting a desert scene included desert plants. By the campfire was a tent and prepared cot; and in answer to every Rockhound's dream, there was a rock under every bush. In the center of a geode was a rock flea, which brought to mind that once bitten the victim is never cured.

Another master in miniatures is Lee Unruh of Salem, Oregon. His laboratory is set up in the basement of his home and contains the following equipment: two 1 x 12 in. grinding wheels, two 10



Lee Unruh, of Salem, Oregon, with simple tools, makes these fine miniatures from agate coming from surrounding states.

Courtesy *Mineral Notes and News*

in. sanding discs, one 16 in. lap, one 12 in. diamond saw, one felt buff for polishing, and an ordinary drill press. He favors agates from the various states, and his work is of such high quality that Universal News Reel Service made a short film of his miniatures and his lapidary technique.

Beautiful gifts have been made up out of minerals, as well as useful articles to adorn the home. Many lapidists prefer to have an experienced jeweler mount their polished specimens. Others find great pleasure in doing all of their own work—cutting, polishing their stones and setting, inlaying, or mounting them in jewelry or silvercraft. One of the finest examples in this field is the beautiful dresser or vanity set of J. H. McCornack of Los Angeles, California. It is carved from snow-white, black veined howlite which he dug out of Tick Canyon, near Saugus, California. The howlite is mounted in Sterling silver. When the powder box is opened it plays music.

I have seen many beautiful articles of utility made from minerals and stones (especially of agate and quartz): door knobs, toys, letter openers, jewelry (set with cabochons as rings, stickpins, brooches, etc.), book ends, lamp stands, swords, ash trays, door numbers, pictures (of a flower made from agates; also scenes of lakes, woods, deserts made from moss

agates, etc.) and miniatures of animals, birds, fish, etc. An oil lamp set into a pedestal of green cement inlaid with gleaming minerals is a fine gift, as well as a box of minerals arranged and numbered around a center mineral or birthstone. The boxes are made well, varnished or painted, of fine grained hard wood or veneer. The birthstone can be inlaid outside in the middle of the box.

In making a watch fob, a leather shield is fastened to the strap and a picture of a lake, forest, desert scene, an animal or letters or other ornament made of minerals or stones is fastened to the shield. A silver bracelet inlaid with minerals or stones, or with stones hanging loosely from it by silver rings, can be designed. An ornamental ink well can be made by burying a glass well in a block of cement and inlaying minerals into it before it sets. The Los Angeles (California) Lapidary Society has several experts in cutting and polishing and in jewelry and silvercraft: among some of the exhibition prize winners may be listed: Rooster, owl and rabbit in silver, by Jessie Quane; silver fan set with lapis lazuli, and bubble dancer in silver, set with moonstones, by Susie Kieffer; Indian heads carved from howlite, by Ray Kruger; lighted geodes, by Mr. and Mrs. J. S. Forbes; large silver pendant of sea horses in filigree work holding a superb moonstone, by Jessie Quane.

Some beautiful lamp shades have been made from various kinds of mica plates. Most popular for this is muscovite containing the flat red spessartite garnets from North Carolina. Sometimes muscovite plates will have biotite centers looking like the ace of diamonds; while others may have borders of purple or yellow lepidolite. If mica contains thin, flat crystals of other minerals, dark dendritic inclusions, "A" structure or phantom growth lines, so much the better. Splitting the thin plates will often give duplicates for the various sides of the shade.

Bird houses, vases, flower pots, and clocks housed in minerals arrangements can be constructed.

I need not mention much about commercial work using polished cut stone



Beautiful howlite may be cut into jewel y or made into dresser sets similar to the above. This is the prize winning vanity set of J. H. McCornack, of the Los Angeles Lapidary Society.

Courtesy Two Bells Magazine

ROCKS AND MINERALS

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facings and linings in public buildings. Ornamental rocks have a big part in building, especially volcanic rocks and flagstone (stratified sandstone). Attractive arches of rocks have been built over gas stations and at entrances. Fence walls of multi-colored rocks have been constructed. I know of a small chemical laboratory built of flagstone alternated with vari-colored rocks; even the steps are constructed that way, and it is very attractive. Rockhounds may purchase these rocks and build their own ideas. The home can be built out of stones; the fireplace; outside walks; and even the fences. Some dealers supply broken rocks as druse chert, etc. Many nice specimens can often be found in these broken bits for inlaying mantels and fireplaces, etc.

One small home owner had a novel idea. The front porch of his home was of concrete. He put a mineral border or

edge to it, cementing large specimens of minerals all round the edge. The edging consists of huge masses of lepidolite, blue chalcedony, pyrite, etc. A bird fountain of concrete is inlaid with minerals; and a large concrete receptacle, for handbills and papers, is inlaid in the same way.

One of the most beautiful fireplaces I ever saw was back in the Missouri Ozark Mountains. It was constructed of local vari-colored rocks cemented together and druse chert and gem stones cemented all over it. Another stone fireplace had a row of thin translucent slabs of several colored minerals set just below the mantel. Electric bulbs behind these gave a very pretty effect. This idea may be applied to other things, as a small electric lamp, around which is placed small translucent pieces of minerals like calcite, fluorite, talc, and pink marble, built up with the aid of Duco cement. Also, surround some



Desert rocks make a colorful boundary to keep "Lil Butch" on your lawn and the dogs off. Above, Guy Gifford, editor of *Two Bells Magazine*, of Los Angeles, Calif., has created his version of a garden wall from quartz, blue chalcedony, and multi-colored rocks from the Mohave Desert.

Courtesy *Two Bells Magazine*



This rock house, built of colorful rocks (coping and part of window trimmings are of snow-white calcite) houses one of the finest private collections in the Southwest—that of A. E. (Bill) Curry, of San Angelo, Texas. Bill is president of the State Mineral Society of Texas, and besides this rock museum, his home is also a rock house built of specimens from all over the country, complete with mantel, rock fences, fish pond, fireplace, pump house, etc.

Courtesy *Mineral Notes and News*

argon lamps with a built-up layer of English fluorite. I have been told that a Christmas tree built up of folia of translucent green talc with a small electric lamp at center is attractive.

Many people are interested in how mineral forms resemble natural objects, and this has been extensively commercialized in all of our famous caves. Often little concretions from clay strata as well as minerals resemble people or animals. A good example of this is the Golden Bear Nugget, official emblem of the California State Federation of Mineralogical Societies. This is an amorphous mass of gold crystals, one octahedron crystal showing perfectly. It is less than 2 inches wide, less than 4 inches tall, and is a replica of a California golden bear in standing position. It is housed in the museum of natural history in Santa Barbara, California. It was found in the last century in the Mother Lode country, near a leaking flume in Placer county, I believe.

Up in the Hollywood mountains the city of Los Angeles maintains a fire sta-

tion. They have taken advantage of securing fossilized shale rocks to decorate their grounds. Low fences made of this rock, as well as walks and walls, plainly reveal some of the monsters of the deep, that roved the bottom of the Pacific Ocean eons ago. In the flat, stratified shale rocks are plainly revealed marine life of that age - turtles, worms, shell fish, fish, etc. A large petrified turtle sits in the back yard.

Many collectors have found likenesses of people, animals, and things in minerals and rocks. In the middle west I once saw a hematized sand concretion almost perfectly resembling a bunch of grapes, even down to a stem. Along the shore of the Meramec river near St. Louis was found a sieve formed from chert. It was nearly perfect, its geometrical pattern being a replica of the real thing. Some of these things formed by nature may be too large to carry away; in that case we can take pictures of them for that album or curio file. Things in this classification may be found in many of our parks. For instance



The beautiful fireplace in the home of Mr. Curry, of San Angelo, Texas.

The mantel was built mainly of calcite and quartz crystals with a few slabs of polished agate. With a beautiful lighting system you would enjoy seeing it.

Courtesy Mr. A. E. Curry

in Yosemite National Park, in California, may be found Bridle Veil Falls, Cathedral Rocks, -Three Brothers, Royal Arches, Sentinel Rock, Washington Column, North Dome, Half Dome, etc.

There is hardly any end to these mineralogical wonders and the enjoyment and happiness that may result from the finding, preserving, and beautifying our surroundings, with these gifts of nature.

Stannite found in Alaska

Stannite is a sulfide of copper, iron, and tin of a steel-gray to iron-black color. Although a rare tin mineral, it is found in a number of tin-bearing veins throughout the world.

It is found in Alaska, but at only one locality—in the tin deposits of Lost River on the Seward Peninsula. Here the

stannite (of a brownish-black color), which also contains a litt'le zinc, is associated with galena and wolframite in a gangue of fluorite and topaz.

The locality on Lost River is near the southern shore of Seward Peninsula of western Alaska.

THE ANCIENT VOLCANO OF LATIUM AND THE MINERALS OF ARICCIA, NEAR ROME (ITALY)

By ROBERTO PALUMBO

211 Corso Trieste, Rome, Italy

and

Cpl. Robert T. Howard, 32345121 5th Ord. Co. (M.M.)
A.P.O. 782, % P.M., N. Y., N. Y.

The war which has raged for five years with all its horrors and destruction, has also passed over these peaceful countrysides, well known for its excellent wine.

The group of the Albano Hills about 16 miles from Rome, are well known to all mineralogists. They were formed by an ancient volcano extinguished since the post-pliocenic epoch. It is one of the biggest volcanos, extending almost uninterrupted from Naples and the center of Tuscany.

It seems to have appeared in the pliocene epoch when the whole Roman country was still submerged by the sea and continued to erupt enormous quantities of lava, lapilli and ashes; these last, partly transformed into the yellow lithoid tufa well known in Rome, and into the grey "peperino".

The most ancient edifice, i.e., the external enclosure, has a diameter of about 12 miles while the highest points of the interior range reach up to 3,280 feet above the sea. The volcano has had several craters, some of them have been transformed into lakes, such as the lake of Albano, the largest, and the lake of Nemi, famous for the two Roman ships of the Tiberia epoch, salvaged some years ago from the bottom of the sea and conserved in a museum, but now destroyed by the war.

The lavas erupted by this volcano are all leucitic. Large flows of typical LEUCITITE, sometime mellilitic, nearly reach the outskirts of Rome. One flow follows the Old Appian Way (Capo di Bove) known for its geodes of *Nephelite* and *Mellilite* crystals. Another diverts towards Via Laurentina where in several quarries one may easily find the most beautiful geodes of *Phillipsite* and *Gismondite* crystals. Besides leucitite there is an abundance of another rock called TEFRITE, which at certain points though rarely, show big crystals of

Leucite. For instance, the so-called "Tavolatite" with large white Leucite crystals of from $\frac{1}{2}$ to $1\frac{1}{2}$ inches, which detach themselves easily from the grey rock, in which one can also distinguish microscopic blue points of *Hauynite*. Unfortunately no deposit of this beautiful rock exists, but only erratic blocks along a ditch which crosses the Golf-Club well-known to all American residents in Rome.

The characteristic pyroclastic "PEPERINO", a compact tufa grey in color with black points of *Mica*, so called because of its resemblance to ground pepper, has a great importance on the western side. Particularly in this rock one may find blocks rich in beautiful minerals.

The quarry of Ariccia, a little town on the western side of the Volcano, has been famous for more than a century. From this quarry originate the specimens which are now in many museums all over the world. The museum of the Royal University of Rome has a magnificent collection, many beautiful specimens also repose in the States, especially at the U. S. National Museum in Washington and at Harvard University.

Good specimens of these minerals are not so frequent as the blocks taken out very often contain only very small crystals but during the extraction of the peperino for building purposes now and then some very beautiful specimens are uncovered.

Below is a list of the principal minerals of the blocks enveloped in the "peperino" of Ariccia which are more or less analogous with those of Monte Somma. The blocks vary between 1 and $1\frac{1}{4}$ inches in size.

AUGITE: Black crystals, sharp, from $\frac{1}{4}$ " to $1\frac{1}{4}$ ", scattered in the peperino but not very easily found.

BIOTITE: Blade-shaped crystals distinctly limited, green grey, or black; also

in blade-shaped masses, with Augite, Leucite, etc. Copper red plates with granular Leucite.

CALCITE: Minute crystals in silicated blocks.

CUSPIDINE: This very rare mineral, first found at Monte Somma, is represented by beautiful, pointed, small crystals (similar to scalenohedral) very often covered by a thin crust of Calcite, but sometime unaltered such as the unique specimen at Harvard University. The Cuspidine is always accompanied by Vesuvianite and very often attached to the crystals of the latter.

DOLOMITE: White masses, finely granular, wrapped up in the peperino.

FASSAITE: Small crystals, dark green, with Biotite.

HAUYNITE: Small beautiful octahedral crystals sometime modified, pale blue, with Biotite, Vesuvianite, Calcite, etc. Pale blue, granular, with green Augite, Biotite, etc.

HYDRODOLOMITE: Globular, white in masses, with Dolomite.

LAPIS-LAZULI: Compact, ultramarine blue, sometimes with coarse granular Calcite.

LEUCITE: Perfect, sharp crystals scattered in peperino, from $\frac{1}{4}$ to $1\frac{1}{2}$ inch, not too easily found.

Beautifully large, perfect crystals in soft tufa matrix, $\frac{1}{4}$ to $1\frac{1}{2}$ inches.

Small pale yellow crystals, with Augite.

Granular, coarse, with Augite and Biotite and sometime Magnetite.

(Called "Italite" from H. S. Washington)

MELANITE: Small brilliant black crystals, on Sanidine aggregate, also with Biotite.

MELLILITE: Minute brown tetragonal crystals in matrix.

NEPHELITE: Hexagonal prisms, sharply defined, glassy, brilliant, in Sanidine matrix.

OLIVINE: Granular green masses.

SANIDINE: Small colorless crystals, glassy, on Sanidine-Sodalite aggregate masses.

SPINEL: Rare octahedral crystals in green Mica and Augite masses.

TITANITE: Minute honey-yellow brilliant crystals, on the Sanidine aggregate masses.

The same crystals on Biotite-Augite masses.

VESUVIANITE: Large black crystals, sharp, on matrix of Biotite, etc. and Cuspidine.

Brown crystals in the same matrix.

WOLLASTONITE: Lamellar masses with the same minerals.

Many other beautiful minerals are to be found in the Albano Hills, such as the nice isolated crystals of **MELANITE** of Frascati situated on the south side of the Volcano.

World's Largest Natural Bridge in Utah

The world's largest natural bridge is Rainbow Bridge in southern Utah. The bridge is 309 ft. high, 278 ft. from pier to pier, and at its thinnest point is 33 ft. wide and 42 ft. thick.

The rock of the bridge is a pinkish sandstone, and the arch, roughly similar to the arch of a rainbow, gave it its name.

Although long known to the Indians of the surrounding area, it is believed that Rainbow Bridge was first seen by white men on August 14, 1909, when a party headed by Prof. Byron Cummings, of the University of Utah, came upon it. This late discovery is due to the fact that the bridge is located in a most inaccessible area—very seldom visited by white men. On May 30, 1910, President William H. Taft proclaimed the bridge a national monument.

The bridge is located in the Piute Indian Reservation in S. W. San Juan County, about 3 miles north of the Arizona line; it is also about 3 miles south of the Colorado River.

Reference

Nature's Bridges, by Dr. Raymond E. Janssen. Scientific Monthly. Washington, D. C. Sept. 1943, p. 213.

SEASHORE MINERALS

By J. R. HYNEMAN
Chatham, N. J.

Amateur mineralogists in pursuit of their chief outdoor sport at vacation time are likely to hie themselves to the mountains or to other reputed mineral localities. This brief article will recount how some reasonable mineral dividends may be extracted from, of all places, a seashore vacation.

With my family I have spent several vacations at Block Island, Rhode Island, a small island located equally distant some twelve miles from the tip of Long Island and from the shores of Rhode Island. The island is triangular in shape, having a base of about four miles in length and reaching six miles to the apex at the northern end. A Great Salt Pond almost cuts through the narrowed neck of the apex and by virtue of an artificial inlet to the ocean on the Sound side, serves as a capital harbor for small boats. The outer shore line measures some seventeen miles, with an additional harbor shore line of four miles. While the Island boasts an abundance of unexcelled beaches, the greater part of these sandy 21 miles of outer and inner shore line is lined or paved with rocks worn smooth by glacial or wave action and ranging in size from tiny pebbles to half the size of a house. There are heaps and mile long rows of them, enough it seems to pave a thousand miles of highway.

The shore line and terrain of Block Island are perhaps typical of many other islands along the New England coast and of other parts of the country as well. A glacial deposit, the island is composed largely of sandy, gravelly clay. In the beach exposures the clay sometimes becomes very fine, free of sand, and even plastic in texture.

Examples of this are found north of Clay Head again at the South Cliffs. At the latter place some white clays are noted, but dark gray colors preponderate. At other places may be found perfect picture book examples of angles of repose for gravel and other earth textures, while still others exhibit the stratified formations and eroded peaks of a miniature Grand Canyon.

The soil is everywhere freely interspersed with boulders reaching up to tremendous size. These furnish material for stone fences which divide the Island into a multiplicity of small fields and when washed out along the beaches help to check the ravishing of the waves. These boulders are usually gneissic rocks ranging from gray to yellow in color as the proportion of feldspar increases. Some rocks are pegmatitic in nature and thin yellowish dikes of pegmatite dividing large boulders are common.

One could ponder at length upon the nature and shapes of pebbles. Dominated no doubt by the form and homogeneity of the original rock fragment, they end up in rounded forms, always flattened, never spherical. Perfectly formed round or ellipsoidal pebbles are not uncommon among the gneissic rocks composed of a mixture of minerals, but the perfect pebble in quartz was never found.

Minerals found on Block Island

To flush out minerals here one must walk; up and down the shoreline, at the foot of the cliffs and along the stone fences. If they aren't found the first time try another day, another place. Little was found that could add elegance to a cabinet of specimens, but many things bordering on the unusual, at least to this collector, kept one forever searching. A general list of the finds follows:

Amphibole Large basaltic pebbles with phenocrysts of black vitreous mineral in elongated, sometimes sheave-like form. Also sometimes found in schistose rocks and showing alteration to limonite. These were the more unusual varieties. Found everywhere as rock-forming material.

Asbestos One thin rock bearing embedded threads of asbestos.

Beryl A nondescript rock about fist size picked from a muddy bank appeared to be half graphite and half cryptocrystalline quartz. However, when a portion of the quartz chipped off a wide striated area appeared such as is never found in quartz. This material finally turned out to be beryl.

Epidote Apple green crusts and seams on large pebbles.

Feldspar Large orange yellow crystals in pegmatitic boulders and in smaller feldspar pebbles. Another distinct variety is brick-red and somewhat granular in nature usually being joined with a small amount of cinder-like black material to form sizable boulders, particularly along the Salt Pond shore line.

Garnet Small dark red to black imperfect crystals in mica schist. A slab of schist found at Old Harbor Point contained several nice crystals up to 3/8" diameter. More frequently garnet is found in small gneissic boulders in more or less disintegrated red splotches.

Graphite See under Beryl above. This mineral in small amounts is found in many pebbles. One piece exhibited unusual brittleness.

Iron Limonite is a common mineral and occurs in many interesting forms. It appears as coatings and as crusts on masses of pebbles and as nodules. Large masses usually lens-shaped are exposed in the eroded clay cliffs at Clay Head and at the South Cliffs. Some earthly *hematite* was found. At Clay Head a seam of *magnetite* sand was located at high water level. These deposits have also been found elsewhere.

A few specimens of a heavy iron-b'ack mineral with botryoidal surfaces were collected and put through all the tests ranging from the iron oxides through the sulphides to psilomelane, and the mineral might have been loosely attributed to any of them. However, it is my conclusion that this "mineral" is blast furnace waste brought here as ship's ballast and left ashore by some ill-humored skipper to confound amateur mineralogists for so long as the specimens shall endure.

Limestone One egg-shaped piece of coral about ten inches long was found. This stone would ring pleasantly when tapped but lost its musical proclivities after being broken for transportation.

Mica In schists, usually *biotite* but also in lighter varieties to give glitter to all manner of pebbles. *Phlogopite* in the granitoid rocks. An unidentified altera-

tion product occurring as small masses in schists about 1/4" x 1", white, with pearly luster, sometimes micaceous, sometimes bearing lengthwise striations, and breaking into small needle-like fragments.

Pumice A single large yellow pebb!e. Perhaps this is another bit of spoofing by some ship's crew, since as pumice scouring brick it could have floated ashore if cast from a deck.

Quartz A constituent of the boulders, also profuse in milky, translucent jasper pebbles. As white seams ranging down to thread-like to produce interesting spider web effects in dark pebbles. Occasionally crystals may be found in freshly broken cavities of the larger rocks where wave and sand erosion has not yet entered destructively. One sizable brown and red banded agate was found in a rock fence and another on the beach of the Salt Pond. *Chalcedony* is not common but one typical specimen was found bearing the imprint of crystals. A few sizable specimens of *silicified* wood ranging in color from buff to green were found near old Harbor Point. Grayish flint pebbles were occasionally found.

Serpentine Bluish veins in milky quartz pebbles.

Tourmaline Black crystals in white feldspar but usually brittle and broken. Sometimes found in schistose rocks where the softer matrix permits recovery of small crystals. Larger ones up to 1/4" are likely to be broken. These crystals appear much like hornblende.

Finest Fluorites Found in England

The finest crystals of fluorite known are found in the lead mines of Alston Moor, Cumberland, and Weardale, Durham, of northern England. The crystals occur in cubes—often quite large—and of a number of colors as green, blue, purple, and even colorless. They all fluoresce a beautiful deep blue under the long rays of an ultra violet light (argon bulb).

Alston Moor is in the eastern part of Cumberland County; Weardale is in the western part of Durham County.

PETRIFIED WOOD IN THE WASHINGTON, D. C., AREA

By FRENCH MORGAN

Fossil wood in the form of lignite is found rather abundantly in low lying areas in the District of Columbia and in nearby Maryland and Virginia. Petrified wood, on the other hand, is not so plentiful. Small pieces may be found in gravel bars along streams and occasionally larger pieces and trunk sections are uncovered in excavation and street construction.

During the summer of 1944 a section of a petrified tree trunk, ten feet long and three feet in diameter at the butt end, was uncovered by a bulldozer while grading for a new development on Four Mile Run near Alexandria, Virginia. This specimen and three smaller ones, probably from the same tree, have been placed in the Arlington County, Va., Park.

The petrified wood in this area, almost without exception, is light gray or brownish-yellow in color, and is soft and easily broken, and belongs to the conifers, according to Dr. Roland W. Brown, of the Smithsonian Institution. The one exception with reference to color and hardness, with which the writer is familiar, is a specimen he found in the Northwest Branch of the Anacostia River, just over the District line in Maryland, in July, 1943, when the Mineralogical Society of the District of Columbia was conducting a field trip to that locality to view a deposit of fossil lignite wood.

The specimen was found at the bottom of a twenty inch strata of sand and gravel, resting on a strata of blue marl in which the lignite is found, and had been partly uncovered by the flow of the stream. The specimen measures roughly 3 inches by 6 inches by 12 inches long, and weighs 10 pounds. It shows marked evidence of decay before petrification set in, and is apparently from the outer part of a tree four or five feet in diameter as evidenced by the ring structure which is well preserved.

Being from the east, this is an outstanding specimen in at least three respects. First, it is hard and takes as good a polish as wood from the Petrified For-

est of Arizona. Second, it shows good color which compares favorably with western woods, being red, yellow, and gray, intermingled with brown and other shades resulting from the third outstanding feature, which is, that it contains at least 50 worm holes, the result of termites rather than the teredo.

These markings or stains, resulting from the worm borings, spread in all directions from the holes, especially lengthwise of the log, and are as true to color and as well preserved by petrification as they appeared in the wood in its natural state. The holes are all solidly filled with material as black as coal and as hard as the rest of the material, and polish without a flaw or a break to mar the polished surface. These black spots and their stains show up in marked contrast with the brighter colors, this feature making it an unusual specimen for any part of the United States.

Dr. Frank L. Hess of the U. S. Bureau of Mines, took a cross section and a longitudinal section and sent them to the National Museum for identification. Dr. Brown, who had made a study of the strata at the identical spot where the specimen was found, and had published a bulletin of his findings, pronounced it to be *cupressinoxylon*, an ancient form of cyprus that flourished in the Lower Cretaceous age, and of the same species and age of the lignite found plentifully at the same spot in flattened logs, sometimes as large as three or four feet in diameter and twenty feet long.

Several members of the Mineral Society have visited this locality since this find, but to date no other specimens resembling it have been found, though one young man, Bill Sando, did find a specimen of the usually gray colored wood containing three or four worm borings. However, this fossil bearing strata covers a wide area of low ground through which the stream flows, and there is always the possibility that some lucky person may find another specimen.

GNEISS-INWOOD LIMESTONE CONTACTS IN WESTCHESTER COUNTY, N. Y.

By THOMAS W. FLUHR

For many years there has been a controversy concerning the relations of the gneisses with the overlying Inwood limestone formation. Some geologists believe that the Inwood limestone was deposited conformably on the underlying gneisses and consequently is of nearly the same age. Others contend that the gneisses were deformed, metamorphosed, and eroded before the Inwood limestone was laid down, and that the Inwood therefore is a much younger formation, separated from the gneisses by a deformational and erosional unconformity.

The relations of the limestone to the gneisses, as observed in the field, are therefore important in attempting to determine the structural relations and relative ages of the two formations.

Much of the evidence offered hitherto in regard to the Contacts of the Inwood with the gneisses has come from tunnel excavations. Since the tunnels have been lined with concrete, the contacts are no longer available for inspection.

It is not generally known that there are places in Westchester County, N. Y., where such contacts are visible at the surface. These afford opportunity to gather evidence which may be used to support one hypothesis or the other.

The author, who has had opportunity to inspect many of the contacts, has not been able to find in them conclusive proof of either the conformity or unconformity of the Inwood with the gneisses. However, it appears worthwhile to direct attention to the surface exposures, for critical study of them may reveal evidence bearing on the problem. Therefore they are listed as follows:

Stamford Quadrangle.

1. South end of Trinity Lake.
2. North end of Trinity Lake.

Carmel Quadrangle.

3. On the hill between South Salem, N. Y., and Ridgefield, Conn.
4. South of Salem Center and near the junction of Routes 121 and 124.

5. West of Route 121 and about $\frac{3}{4}$ mile northeast of Cross River.

6. Near the west end of Lake Katonah.

7. North of the Ponvert (or Nash) Road and 1 mile northeast of Goldensbridge.

8. North of Fields' Lane and about $1\frac{1}{2}$ miles east of Croton Falls.

9. Near the junction of Route 121 and Field's Lane.

10. North of Route 116 between Lincolndale and Somers.

11. On the Muscoot River about 1 mile southeast of the Amawalk reservoir dam. *Tarrytown Quadrangle.*

12. At the electric transformer station at Millwood.

13. Just north of the Teatown Lake Road and two miles west of Kitchawan.

14. South of the same road and about one mile farther to the southwest of No. 13. (Yonkers-Inwood contact.)

In addition to these, there is an exposure of limestone lying entirely within the gneisses on the Bronx River Parkway Extension just to the east of Echo Lake Park.

Gold on Coker Creek, Tenn.

Gold is found in a number of localities in Tennessee but one of the most important is that of Coker Creek, in Monroe County. Coker Creek flows through a broad valley, 2 miles wide and 10 miles long. The upper half of the creek is in Monroe County, and the lower half in Polk County, the two southeasternmost counties of the state.

Auriferous quartz veins in shale, sandstone, and quartzite, have been mined for many years at the locality in question. Native gold is sometimes found in small specks and grains in the quartz. Auriferous pyrite is a common mineral in the quartz veins, while garnet (almandite) and magnetite have also been found. A common mineral in the shale is limonite pseudo after pyrite cubes. So common are the pseudomorphs that in places the ground is strewn with these loose brown crystals which vary in size from tiny up to 2 inches long.

PURGATORY CHASM IN MASSACHUSETTS

By JOSEPH STACHURA
96 Rockland Rd., Auburn, Mass.

A short distance southeast of Worcester, Mass., is an interesting locality which I have visited many times. The locality is Purgatory Chasm near Whitinsville. To reach the locality take No. 23 bus (of the Worcester Street R. R. Co.) for Whitinsville, at Salem Square in Worcester. Ask the driver to let you off at the stop for Purgatory. When you get off the bus, walk directly up hill—past the theater. The road is very good with lots of nice scenery but it is two miles to the Chasm. The Chasm is a popular area with visitors. It has picnic benches and tables, fire places, swings, slides, seesaws, a merry-go-round, and a pump for water. There are many caves, too, some extending 100 ft. or more.

The chasm is about $\frac{1}{2}$ mile long with walls averaging from 30 to 60 feet high. At its far end is a small bog or swamp but there is a board walk over it.

As you walk down the Chasm over a good path, you will notice that the rock is granite, which had been worn down by ancient glaciers. Numerous quartz veins are to be seen in the granite. As you proceed down the Chasm you come to a 60 foot sheer-drop—known as "Lovers Leap"—a little past this spot there is a small vein of pale amethystine quartz. A short distance past the amethystine vein, the path curves and runs up to the top of

the Chasm and here is where you should look for the best specimens. Right along the right-hand side of the path there is a vein of dark smoky quartz (I found good loose specimens here); on the left hand side is a large dike of orange feldspar which breaks out in nice cleavages. Small beryl crystals, about $1\frac{1}{2} \times \frac{1}{2}$ inches in size and of a nice green color but not gemmy, can sometimes be found in the dike.

Going up over the small ledge, past the quartz vein, there are numerous mica occurrences where nice books, about $3 \times \frac{1}{2}$ inches in size, can be obtained.

Close to the mica occurrence there are more feldspar dikes which also contain beryl and in addition quartz.

After passing the last ledge the path runs through a small forest of evergreen trees and oaks and many flowers but there are no minerals to be found.

If any member of the Association wishes to visit the Chasm and would care to call on me, I would be very glad to go with him. Auburn is 2 miles south of Worcester, the second largest city in Massachusetts.

Editor's Note: The author of this interesting little article is only 13 years old but he is a member of the Worcester Mineral Club and the R. & M. A.

Eisenrosen Crystals found in Switzerland

At St. Gothard, in Switzerland, beautiful specimens made up of platy black crystals of hematite grouped together in the form of rosettes (termed *eisenrosen*) are found lining cavities and pockets of gneiss and granite. Associated with the *eisenrosen* are beautiful crystals of adularia, muscovite, rock crystals, smoky quartz crystals, etc.

St. Gothard is in the N. W. corner of Tessin (Ticino) Canton, of S. E. Switzerland.

Zircon on St. Vincent Island

Zircon is a silicate of zirconium and is found in many parts of the world. An interesting occurrence is on the small island of St. Vincent (the smallest island of the Windward group of the Lesser Antilles) in the British West Indies.

The zircon is found on St. Vincent only as small grains in deposits of black sands which consist chiefly of magnetite. These black sands are found at a number of localities on the island but the most important occurrence is on the east coast where a deposit, about a mile long, occurs between Georgetown and Black Point.

QUICKSILVER—MYSTIC METAL, AND THE GREAT BONANZA

By T. ORCHARD LISLE

Last summer, a national magazine published the "story of the month" under the heading: "The Great Quicksilver Bonanza" and said that the ceiling was far up in the sky, and nobody knows how far down the floor will be. "For quicksilver producers", stated the magazine, "there is a grand irony in the story of a metal that bristles with ironies and incongruities, to say nothing of death and disaster." Because there were about 100,000 flasks in the Washington stockpile, the price of mercury did drop for a few months to \$90 per flask; but now it has shot back to \$165, so it looks as if that magazine will have to eat its words.

The Army Signal Corps recently approved the mercury storage battery, which has been developing for some time, and now there is a rush to manufacture electric accumulators of this type with the result that the demand for quicksilver exceeds the supply. Also, the mercury boiler and turbine, which were under development before the war, may come into their own when Victory is here and further increase the demand. In 1942 the price of quicksilver was \$191 per flask, which is the top price in history. Many quicksilver mines can make a small profit with the metal selling at \$70, this depending upon the volume and richness of the ore. A flask of quicksilver weighs 76 pounds.

While some quicksilver is found in its native state, the greatest production comes from the colorful ore, cinnabar, or mercuric sulphide, by "roasting" and distilling. When cinnabar, a colorful red, is found in hard rock such as serpentine or quartz, in opalite, in layers between dolomite and serpentine, it makes a lovely cutting and polishing material, especially if the opalite or dolomite fluoresces. The dump heaps at cinnabar mines often make happy hunting grounds for rock hounds.

Beautiful cinnabar crystals—sometimes packed thick over ten inches square—are to be found at the Sulphur Bank

quicksilver mine on the shores of Clear Lake, California. The writer has one fine piece about 4½ inches, by 3 inches, on which there are at least one-thousand deep red crystals, which he found there two years ago. It was one of a dozen pieces that he secured by dodging the bucket of a big Diesel shovel which was digging the cinnabar out of a bank of soft gray formation. The cinnabar was hot, and the crystals soft and paste-like, as there are hot mineral springs all over the mine, and cinnabar and sulphur crystals are still in progress of being made. However, the matrix and the crystals quickly get hard after exposure to the atmosphere.

At the time, many more pieces could have been obtained; but because of the softness of the crystals, the writer did not bother. When returning some time later, he found this section of the mine worked out and no more specimens of the same quality were to be found. Last summer the writer heard that the mine had closed down; but it is possible that it may have opened up again because of the increased price of the metal.

At the Mirabel mine, about 20 miles from the Sulphur Bank mine, one of the miners showed the writer a magnificent cinnabar-crystal lined geode, the crystals of which were larger than those from Sulphur Bank. They also were of a brilliant dark red.

A. L. Rogers, of Middletown, California, who worked at Sulphur Bank mine, and who is, or was, a member of the Northern California Mineral Society, showed the writer some lovely clusters of cinnabar crystals from this location.

Because of the great heat a few feet below the surface, at Sulphur Bank, underground mining had to be discontinued, and deep cuts made instead. If they succeed in mining at greater depths, perhaps some even finer specimens will be found.

CALIFORNIA MINERAL PRODUCTION FOR 1944 IS LARGEST ON RECORD

The total value of the mineral production of California for the year 1944, just closed, is conservatively estimated by the Statistical Section of the Division of Mines, Department of Natural Resources, under the direction of Walter W. Bradley, State Mineralogist, to have been \$451,553,000. This is partly detailed in the tabulation below, but there are more than sixty mineral substances on California's commercial list. Figures on the most important items only are available at this early date. The production report forms are being mailed to the operators in all mineral lines and the detailed and completed report will be compiled and published later.

The estimated total of \$451,553,000 is an increase of approximately \$25,108,000 over the 1943 total value of \$426,445,280. The above total value for 1944 is the largest annual mineral output on record and is due to increased petroleum and natural gas yields.

The total petroleum output showed an increase of about 26,846,000 barrels or about 9.5% in amount, with about a 10.5% increase in value over 1943. The estimated quantity of crude oil is 310,992,000 barrels for the year and is the largest annual amount ever produced in California, although its value was exceeded by that of 1926 when the unit value per barrel was much higher. Natural gas showed an increase of about 12.5% in both amount and value of that utilized, compared with the previous year.

Reports of the Mint and smelters show the output of gold to be the smallest of any year since 1848, the year of James W. Marshall's finding of gold at Sutters Mill. Metals that showed an increase in output were copper, iron ore, and zinc. All other metals registered a decreased output due to lesser war demand, and to the fact that reserves in stock piles had become adequate, resulting in lower prices and cancellation of contracts and bonuses. The value of the output of copper, chromite,

iron ore, quicksilver, tungsten ore, and zinc, as well as that of gold exceeded the million dollar mark.

Estimated values and quantities for 1944 are as follows:

\$ 3,972,000	(113,500 fine ozs.)	gold.
543,000	(763,700 fine ozs.)	silver.
3,236,000	(24,150,000 lbs.)	copper.
875,000	(11,076,000 lbs.)	lead.
1,766,000	(15,767,000 lbs.)	zinc.
2,716,000	(24,250 flasks)	quicksilver.
10,825,000	other metals including	chromite, iron ore, manganese ore, molybdenum ore, platinum group metals, and tungsten ore.
323,432,000	(310,992,000 bbls.)	petroleum.
31,468,000	(499,500,000 M. cu. ft.)	natural gas.
22,505,000	(14,970,000 bbls.)	cement.
18,500,000		miscellaneous stone.
3,900,000		brick and hollow building tile.
915,000		other structural materials, including granite, magnesite, marble, sandstone, and slate.
10,700,000		miscellaneous industrial materials.
16,200,000		salines including borates, potash, iodine, salt, soda, and others.

\$451,553,000 Total.

Agates and Jaspers of Western Persia

At many points along western Persia and especially near the Iraq frontier, as for example along the road from Khanakin (Khanakin), Iraq, to Zohab, Persia, fine agates and jaspers are found as rolled pebbles in the gravel which covers the land. Many of these pebbles have been collected and cut into beautiful ornaments and gems.

Miniature Phantom Crystal In An Unusual Geode

Last Fall a geode of more than ordinary interest was found in the traprock at the Sowerbutt quarry, Prospect Park, Paterson, N. J. by T. Orchard Lisle. The interior is about 4 inches long, by 2½ inches deep and 2½ inches wide, and is lined with hundreds of tiny quartz crystals of good clarity and fine form.

One of these little crystals, about a quarter-inch long and a thirty-second of an inch diameter, contains two perfect phantom crystals. Mr. Lisle would be interested to know if any other reader of *Rocks and Minerals* has previously seen such small phantom crystals.

Also in this geode are fifteen good stilbites, each half inch long and some smaller specimens. The ends of two of the stilbites are covered with a light green incrustation, fuzzy in appearance. There also are about a dozen reddish brown minute crystals, also fuzzy in appearance. At the back of the inside of the geode is a fine double-terminated calcite crystal one-inch long.

World's Finest Barites Come From Dufton, England

The finest barite crystals known occur in the lead mines at Dufton, Westmoreland, England. They are generally colorless, white, yellow or brown in color and of a tabular (platy) form. Some crystals have been found which weighed up to 50 lbs. each.

Dufton is in the northeastern part of Westmoreland County, in northern England.

St. Alyre Springs, France

Clermont is a city in south-central France (in the central part of the Department of Puy-de-Dome). On the northern outskirts of the city are the curious Petrifying Springs of St. Alyre. These springs are not only celebrated for their beautiful lime incrustations but if articles are deposited in them, they will, after a time, become coated with a deposit of finely granular snow-white calcite.

Barite in Tennessee

The largest deposits of barite in Tennessee are found in the Sweetwater district. The deposits occur within a radius of 20 miles of the village of Sweetwater (N. E. Monroe County) on the Knoxville division of the Southern R. R., 42 miles southwest of Knoxville in the southeastern part of the state.

Barite occurs as massive nodules, with nodules of chert, in the yellow residual clay overlying the Knox dolomite. When pure the barite is snow-white and makes nice specimens but most of it is stained yellow or brown by iron.

The deposits are mined by open-cut methods.

Tin in Alaska

The largest deposits of tin in Alaska are near the southern shore of Seward Peninsula in the western part of the country. The chief ore is cassiterite (tin oxide), although stannite (a sulphide of copper, iron and tin) also occurs.

Cassiterite is found in quartz porphyry dikes associated with a number of minerals among which are arsenopyrite, calcite, galena, pyrite, sphalerite, and wolframite. Some very fine specimens of crystallized cassiterite have been found.

The most important locality is on Cassiterite Creek, but Lost Creek and Tin Creek are also noted for tin deposits.

El Cobre Copper Mine of Cuba

The El Cobre mine, in the southern part of Oriente Province (in S. E. Cuba) was the first copper mine to be opened up in the new world by white men—it was opened up by the Spaniards in 1532.

El Cobre is 9 miles west of the city of Santiago de Cuba, in the Sierra Maestra Mts., and about the same distance north from the coast.

The ore veins in the mine are in rhylite, and the following minerals, most of them occurring in beautiful crystals, too, are present: anhydrite, azurite, brochantite, chalcanthite, chalcopyrite, copper (native, in beautiful specimens), covellite, cuprite, gypsum, malachite, pyrite, and quartz.

Cobre is the Spanish word for copper—hence the name of the locality.

Club and Society Notes

MAGIC OF "BLACK LIGHT" DEMONSTRATED AT L. A. M. S. MEETING

The widespread interest of mineralogists in fluorescent minerals was evidenced by the large attendance at the February meeting of the Los Angeles Mineralogical Society, on Thursday, the 15th, 1945.

The interesting talk by Mr. Thomas S. Warren was supplemented by the display of a part of his fine collection of fluorescent minerals, which seemed touched with magic when the rays of the "black light" brought out their amazing colors. Mr. Warren demonstrated both the short and long wave lengths and explained the difference. There are 8 or 10 minerals which are fluorescent with the long wave length but many more with the short wave length and with the short wave length bacteria are destroyed in a few seconds. Tungsten production in this country advanced from 800,000 lbs. to 12,000,000 lbs., since the war was started, largely due to the location of scheelite deposits by means of prospector type lamps. Ultra Violet Radiation is a fascinating subject and the enthusiasm of the speaker was shared by the members, some of whom took advantage of the opportunity to add to their collections. While the subject was much too big to be defined in one evening, undoubtedly those present have a much clearer conception of its scope and possibilities and it is safe to predict that members who are not now equipped with lamps will speedily remedy this condition.

Among the novelties displayed were some beautiful fluorescent paintings. Under ordinary light these appeared to be made with white chalk but under the black light paintings of flowers and fruits, and one of the American flag, glowed in vivid natural colors. Zola Barnes displayed several beautiful little dolls, dressed in costumes which were authentic reproductions of those worn by George and Martha Washington, Mme. DuBarry, and oth-

ers and which were high-lighted by the use of fluorescent paints.

Maude Wheeler was the lucky winner of the door prize and in the book raffle the first prize was won by a guest, Hattie Cole, and the second book by a member. Among the new members whom the Society was pleased to welcome this month, was the winner of the first prize in the book raffle last month.

Field trip chairman, Mr. Abbott, thinks he will have a field trip coming up late in March to Azusa, to see the fine mineral collection at the Azusa Library, to be followed by a short trip up into the hills to collect fluoride specimens.

President Lehman commented on the excellent quality of the material contained in *Notes and News*, the Federation publication which comes to members each month with the *Pacific Mineralogist* and suggested that members wishing to show their appreciation could quite properly do so by sending Mr. VanderEike a dollar bill for a two-year subscription and pass this extra copy along to their friends, either as an introduction to mineralogy or to stimulate interest already established. Attention was also called to the publicity given the Society by other mineralogical publications, which is very much appreciated.

At the meeting on March 15th, Dr. Robert W. Webb of U. C. L. A., Honorary Life Member of the L. A. M. S., will tell about his work in collaboration with Dr. Joseph Murdock in connection with the forthcoming revised edition of Bulletin No. 113, "Minerals of California," published by the Division of Mines of the State of California. This should be a very interesting meeting. Members should not miss this and, as usual, guests are welcome.

Howard Paget, Publicity Chairman
1619 W. 23rd St., Los Angeles 7.

New Jersey Mineralogical Society

Henry L. Rizzo, whose subject was "Mining Tantals in Brazil", was the speaker at the March 6, 1945, meeting of the Society whose headquarters are in the Public Library, Plainfield, N. J. Mr. Rizzo is connected with the Donald M. Murray Co., of New York, N. Y.

Colorado Mineral Society

At the March 2, 1945, meeting of the Society held in the Museum of Natural History, Denver, Colo., Dr. Duncan McConnell was the speaker whose subject was "Garnets."

Northern California Mineral Society

Five meetings of the Society were held during March, 1945. March 9th, business meeting; March 16th, micro-mount evening; March 21st, general meeting at the Public Library, San Francisco; March 25th, field trip to Berkeley Hills for agates; March 30th, lapidary night.

Southwest Mineralogists

Two meetings of the Society were held during March, 1945. On the 2nd a business meeting was held and on the 16th, a social meeting. The Society meets in Los Angeles, Calif.

"L. A. LAPIDARY SOCIETY OBSERVES ITS FIFTH ANNIVERSARY

The Los Angeles Lapidary Society celebrated its fifth anniversary, Monday evening, February 5th, 1945, at the Friday Morning Club house. After an excellent turkey dinner, President Willis called the meeting to order. Two very important items were discussed. The first was the coming exhibit next May to be held in one of the large rooms at the L. A. Museum in Exposition Park. In the past, our shows extended over only three days; but this year the exhibits will remain in the museum for a month or more, thus giving more persons a chance to see this fine display. Mr. Meiklejohn and his committee are busy with the arrangements.

The second important item was the consideration of an amendment to the constitution proposing a planning committee. This group would consider a long view plan for our organization. This plan would eventually include a building of our own to house our exhibits, library, and demonstration equipment besides providing a meeting place.

When the business was disposed of the program chairman, Mr. Loren Mitchell, took charge. First, the members were grouped and a large photograph was made. After this, the speaker of the evening, Mr. Lelande Quick,

one of the club founders and president for two years, spoke on the high lights of the past five years. He told of the first meeting in January, 1940, at which 27 persons were present; then he sketched the major events up to the present time when the organization has almost 200 members actively engaged in lapidary work. He predicted that our society would be instrumental in starting other lapidary societies in nearby localities. Following Mr. Quick's talk, Mr. Mitchell called Mr. Willis to present 68 charter members with a beautiful certificate. Each of these members was called up and presented with the artistic emblem on which his name was hand lettered.

Besides the usual display of gems, Mr. Thomas Warren had arranged on a large board the letters 'L. A. L. S.' in fluorescent material; also, a large 'V' was set in, indicating the five year anniversary. The effect as the mineral light played on the stones was beautiful, especially the letters, which had a lovely soft blue after-glow when the lamp was turned off.

The evening was greatly enjoyed by the 137 members and guests.

CHAS. C. SCHWEITZER,
5933 Miramonte
Los Angeles 1, California

Queens Mineral Society

(Minutes of meeting of March 1, 1945)

The meeting was called to order at 8:15 p.m. There were 12 members and 3 guests present.

The first business to come before the meeting was the reports of the different committees.

The dinner committee—Mr. Maynard reported a profit of \$2.70 on our annual dinner.

The exhibit committee—Mr. Fredericks reported on the exhibit at Hearns' Hobby Show. He mentioned that we were presented with an honorable mention award.

The membership committee — Mr. Green proposed two new members, Mrs. T. Fredericks and Mr. Cal A. Pitha. Both were duly accepted.

The speaker for next month was not made definite.

The speaker of the evening was introduced. He was Mr. Ernest C. Marshall. The subject was the Tungsten and Bismuth Mines at Trumbull, Conn. He displayed many specimens, which he graciously presented to the society, and invited the members to help themselves. He also read the dramatic preface from a book published by the American Chemical Society, "A Monograph on Tungsten". The meeting and then adjourned and the members discussed minerals among themselves.

Respectfully submitted,
Theodore Fredericks
Secretary

Boston Mineral Club

The Boston Mineral Club had at its March 6, 1945, meeting stimulating talks by two of its members, Mr. Raymond Ladoo and Mr. M. D. Bogert. Mr. Ladoo's subject was Fused Quartz. He compared its use with that of glass, and explained a new process of obtaining it; then showed its importance in the science of medicine and in chemical laboratories. Mr. Bogart's subject was A Trip through a Government D. P. C. Magnesium Plant. He showed by diagram and description how dolomite is transformed into magnesium and how this metal of the future is obtained from other sources. The Club meets in the New England Museum of Natural History, Boston, Mass.

Wisconsin Geological Society

At the meeting on March 5, 1945, held in the Public Library, Milwaukee, Wisc., Gordon W. Boudreau was the speaker whose subject was "Simple methods of mineral identification."

Pacific Mineral Society

Victor J. Hayek, prominent attorney and secretary of the Mining Association of the Southwest, addressed the Society at its meeting on Feb. 20th, 1945, in Asbury Apt. Hotel, Los Angeles, Calif. His subject covered a number of phases of the mining industry and some of its economic problems.

Mineralogical Society of Arizona

Two meetings of the Society were held at the Arizona Museum, Phoenix, Ariz., on March 1st, and 15th, 1945. A regular meeting was held on the 15th and one feature of it was the showing of the U. S. Bureau of Mines' motion picture "Asbestos."

Newark Mineralogical Society

The 231st meeting of the Society was held at the Newark Museum, Newark, N. J., on March 4, 1945. Jerome B. Wiss, Certified Gemologist, was the speaker whose subject was a discourse on gems.

Rochester Academy of Science

(Mineralogical Section)

At the March 8, 1945, meeting of the Section, the program consisted of talks by Charles W. Foster on "Water", and Miss Alice Richardson on "Minerals formed by Water." At the March 15th meeting, Dr. Arthur C. Parks was the speaker whose subject was "The Story of the Genesee, a scenic and geological ramble." Both meetings were held at the Rochester Museum of Arts and Sciences, Rochester, N. Y.

Mineralogical Society of Dist. of Columbia

Dr. Frank L. Hess, late of the U. S. Bureau of Mines, was the speaker at the March 16, 1945, meeting of the Society whose headquarters are in the U. S. National Museum, Washington, D. C. Dr. Hess' subject was "The Commonest Mineral in the World".

East Bay Mineral Society

Two meetings of the Society were held during March, 1945, at the Lincoln School in Oakland, Calif. On March 1st, F. E. Purdin presented some of his slides of the Rocky Mts. covering trails, forestry and logging; on March 15th, Julian A. Smith presented a discussion on mineral identification illustrated with slides.

Marquette Geologists Association

Ben. H. Wilson, of the Geology Dept. of Joliet Jr. College, was the speaker at the meeting of the Association on March 3rd, 1945, which was held at the Academy of Sciences, Chicago, Ill. The subject of Mr. Wilson's talk was "Intimacies With Meteorites I Have Known."

... With Our Dealers ...

A new advertiser this month is Hermosa Gem and Mineral Shop, of Durango, Colo., whose proprietor is Karl Hudson, a member of the R. & M. A. Want to know what they are offering? Look the ad up!

Two new finds of special interest to cutters are advertised by James W. Riley, of Springfield, Ohio. Better add them to your stock of polishing material!

V. D. Hill, of Salem, Ore., lists a number of choice, interesting crystals from world-wide sources; he is also headquarters for gem stones, both rough and faceted, also polished mineral specimens.

Another new advertiser this month is Naomi Charlton, of Spokane, Wash., who will surely intrigue collectors with some cut Australian black opal.

A new list of minerals, also cutting and fluorescent material, are featured this month by A. L. Jarvis, of Watsonville, Calif. See his ad on opals!

Roland O. Betterley, of Pottstown, Pa., specializes in S. E. Pennsylvania minerals. Want some? He has them!

Interested in fluorescent minerals? Then look up the ad of H. E. Powell Co., of Little Rock, Ark.

Have you some moldavite pebbles in your collection? If not, a new advertiser, Philip S. Hoyt, Jr., of Van Horn, Tex., can supply them. How many, please?

Brazilian agates and a number of other choice mineral specimens are advertised by Ward's Natural Science Est., of Rochester, N. Y. Get yourself a good agate!

The ad of Hatfield Goudey, of Yerington, Nev., was written under difficult conditions at a prospecting camp 100 miles from the nearest town. We think he made a good job of it, don't you?

Good quality quartz crystals are getting scarce but J. L. Davis, of Hot Springs, Ark., has a few left. Don't wait till next week to order some—why tomorrow may be too late! Order today!

Warner & Grieger, of Pasadena, Calif., announce that a new 3rd edition of the "Art of Gem Cutting" will appear about April 1st. This company is headquarters for lapidary equipment and supplies of every description—just examine their ads!

We are pleased to announce that Mrs. Kathleen Kitchell, daughter of Frank Duncan, of Terlingua, Tex., has recovered from her recent illness and is again tending to business. She has some extra fine superb calcite and selenite that may interest you.

Selected mineral specimens seems to be the slogan of Schortmann's Minerals, of Easthampton, Mass. They are advertising them again but a new list from last month!

Cpl. Walter H. Printz, of Hanford, Calif., is one lucky fellow. He knows how or where to obtain choice Brazilian agates. You can be lucky, too—buy some!

The list of excellent specimens featured regularly by Wiener Mineral Co., of Tucson, Ariz., has proven to be very popular. Another list is featured this month.

Streamliners—best by test! Read about the amazing performance of this great diamond saw that is manufactured by Wilfred C. Eyles, of Bayfield, Colo. You can make the test, too!

National Mineral Supplies, of Kenmore, Wash., have in stock a new fluorescent calcite which is the best they have ever seen. Better see for yourself. Order one or two.

Well, we have a meteorite ad with us! It is featured by E. P. Matteson, of Brea, Calif. Have you a "falling star" in your collection?

Geo. W. Chambers, proprietor of the Desert Rat's Nest, of E. Pasadena, Calif., is on a month's trip to the famous opal mines of Querétaro, Mexico. No doubt he will stop at other localities en route to obtain choice material for his stock.

We have found it! So states the ad of the Western Mineral Exchange, of Seattle, Wash. See if you can find this ad!

Have you a half-breed in your collection? A funny name for an interesting mineral but you act nice and get one from Chas. O. Fernquist, of Spokane, Wash.

Franklin, N. J., is world-famous for its wide variety of minerals—it stands in 2nd place, being exceeded only by Langban, Sweden. The double-page spread of Everts L. Horton, of Bethesda, Md., featuring Franklin minerals only, is of considerable interest to advanced collectors.

Roberts Roots, of Denver, Colo., is another lucky fellow. He admits it. He was lucky in obtaining a few specimens of the rare mineral, cerite. Share his good fortune by ordering one!

Due to illness, Floyd Faux, proprietor of the Eastern Mineral Exchange, of Bethlehem, Pa., was forced to suspend advertising for the past few months. He is with us again!

A new find of triboluminescent sphalerite (in galena) from the Colorado Mts., is announced by Marvin's Rock Shop, of Durango, Colo. (A triboluminescent mineral is one which gives off sparks when scratched with a nail, knife, etc.—best seen in the dark). You must order a specimen of this interesting mineral!

A Salt Mine at Ischl, Austria

Ischl, a little city of about 15,000 pop., is situated in the western part of Austria. The city is in the southern part of the old province of Upper Austria, and is beautifully situated on a peninsula formed by two small rivers, Traun and the Ischl.

The salt mine is 4 miles south of Ischl and is an underground working on the Ischler Salzberg (3170 ft. high). The mine has many levels.

The following minerals occur in the mine:

Anhydrite: Is anhydrous calcium sulphate. Occurs in compact or columnar masses; also in nice crystals.

Blodite: Hydrous sulphate of magnesium and sodium. Occurs massive, flesh-red to brick-red in color; also in finely fibrous red masses.

Celestite: Strontium sulphate. In faint bluish white crystals and masses in halite.

Gypsum: Hydrous sulphate of calcium. Massive; also in colorless transparent crystals (selenite).

Halite: Sodium chloride. Is rock salt, the chief mineral mined.

Glauberite: Sulphate of calcium and sodium. In gray crystals in halite.

Loweite: Hydrous sulphate of magnesium and sodium. Yellowish-white to honey-yellow crystalline masses associated with anhydrite.

Mirabilite: Hydrous sodium sulphate. Colorless efflorescences on the walls of the mine.

Polyhalite: Hydrous sulphate of calcium, magnesium, and potassium. Red masses associated with halite, gypsum, and anhydrite.

VRECO

LAPIDARY SUPPLIES



War priorities on many materials still prevent us from manufacturing lapidary equipment, but we do have available a good stock of the following supplies for the lapidary shop:

VRECO DIAMOND SAWS . . . give you better performance . . . longer life . . . faster cutting.

6-inch.....	\$4.50	12-inch.....	\$ 8.75
8-inch.....	5.50	14-inch.....	11.00
10-inch.....	6.80	16-inch.....	13.75

Arbor hole sizes: $1/2"$, $5/8"$, $3/4"$, $7/8"$, $1"$ or $1\frac{1}{4}"$. Be sure to specify size required.

VRECO GRINDING WHEELS are made expressly for us by the NORTON CO.

Size	4 x $\frac{1}{2}$	6 x 1	8 x 1	10 x 1	10 x $1\frac{1}{2}$	12 x 1	12 x $1\frac{1}{2}$	12 x 2
60, 100, 120 and 180 grit	\$1.05	\$2.40	\$3.60	\$5.00	\$7.00	\$6.30	\$ 9.60	\$12.30
220 grit	1.10	2.60	3.90	5.30	7.50	7.50	10.40	13.30
Minimum Arbor Hole	$\frac{5}{8}"$	$\frac{1}{2}"$	$\frac{1}{2}\frac{1}{2}"$	$\frac{5}{8}"$	$\frac{3}{4}"$	$\frac{3}{4}"$	$\frac{3}{4}"$	$1"$
Shipping Weight	1 lb.	3 lbs.	5 lbs.	7 lbs.	9 lbs.	9 lbs.	14 lbs.	17 lbs.

Arbor hole sizes above minimum, $1/2"$, $5/8"$, $3/4"$, $7/8"$, and $1"$. 12" wheels with $1\frac{1}{4}"$ hole also available.

VRECO DRESSING BRICKS are an indispensable aid to keeping wheels trued.

8" x 2" x 1" Dressing Brick..... \$.55

ABRASIVE GRAIN . . . for recoating sanding cloth, for mud sawing or lapping. Silicon-carbide grains in grit sizes 60, 80, 100, 120, 150, 180, 220, also F (240), FF (300), and FFF (400).

50c per lb. in single lb. lots 30c per lb. in 6 to 99 lb. lots
 35c per lb. in 2 to 5 lb. lots 23c per lb. in 100 lb. lots or more
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POLISH POWDER . . . Tripoli Polishing Powder, 2 lbs..... \$.55

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